



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,212	02/07/2002	Keigo Mizutani	111920	6438

25944 7590 09/15/2003

OLIFF & BERRIDGE, PLC
P.O. BOX 19928
ALEXANDRIA, VA 22320

EXAMINER

TUNG, TA HSUNG

ART UNIT PAPER NUMBER

1753

DATE MAILED: 09/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,212

Applicant(s)

MIZUTANI

ETAL

Examiner

T. TUNG

Group Art Unit

1753

Paper No. 4

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-15 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-15 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Art Unit: 1102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 12, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Makino et al.

Makino discloses a NOX sensor comprising a gas cavity 3, a pump cell with an electrode 522 exposed to the cavity, a sensor cell with an electrode 511 exposed to the cavity, a monitor cell with an electrode 61 exposed to the cavity. The other electrodes of the sensor cell and the monitor cell are exposed to a reference gas cavity 4. The sensor cell and the monitor cell are arranged such that an analyte gas diffusing into the gas cavity 3 reaches electrodes 511 and 61 at about the same time. See figure 1B; col. 5, line 1 to col. 8, line 8.

As for claim 7, the discussion in the paragraph connecting columns 7 and 8 appears to suggest that the difference in the sensor cell output and the monitor cell output represents the analyte gas concentration.

As for claim 12, it is not totally clear what is meant by "line" (line 2) and "center line" (line 5) of the claim. It appears that the recited structure is present in the patent.

As for claim 14, since "length" or "width" is a matter of designation choice, the structure of Makino is seen to meet the claim language.

Art Unit: 1102

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11, 12, 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makino et al.

Claim 11 differs by calling for the sensor cell and the monitor cell to be located side-by-side so that the ends of the cells with respect to the analyte gas flow is less than 2 mm apart.

Claim 15 differs by calling for the sensor cell and the monitor cell to be stacked in a thickness direction.

These are considered to be minor modifications in the absence of unexpected result. Also, if claims 12 and 14 are construed not to be anticipated under 35 USC 102, whatever differences that exist between these claims and Makino are seen to be minor modifications and to be within the skill of the art.

Claims 7, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makino et al in view of Japan 11-344467.

Claim 9 differs by calling for a partition between the sensor cell and the monitor cell. If Makino were construed as not to disclose the analyte gas concentration being represented by the difference in the outputs of the sensor cell and the monitor cell, claim 7 differs in this respect.

Art Unit: 1102

Japan discloses a partition 9 between a sensor cell 21 and a monitor cell 31. See figure 3. It would have been obvious for Makino to adopt a partition between those two cells in order to minimize interference between them.

As for claim 7, the English abstract of Japan '467 appears to disclose the concept that the difference in the outputs of the sensor cell 21 in chamber 7 and the monitor cell 31 in chamber 8 represents the analyte concentration. It would have been obvious for Makino to adopt this feature, since the incorporation of known features from analogous prior art is within the skill of the art.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makino et al in view of Hasei et al 6,274,016 or Kato et al 6,280,588.

This claim differs by calling for the monitor cell electrode exposed to gas cavity 3 to be of a Pt-Rh alloy.

Hasei discloses an electrode for a NOX monitor cell made of a Pt-Rh alloy. See the abstract and col. 9, line 31. Kato also discloses a Pt-Rh alloy for a NOX monitor cell. See the abstract.

It would have been obvious for Makino to adopt a Pt-Rh alloy monitor cell electrode in view of Hasei or Kato, for the advantages set forth at col. 2, lines 10-48 of Kato.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makino et al in view of Lundgren et al 6,238,536.

This claim differs by calling for an A/F ratio sensor in combination with the NOX sensor.

Art Unit: 1102

Lundgren discloses a NOX sensor 8 in combination with an A/F ratio sensor. See col. 7, line 45; col. 8, lines 16-23. It would have been obvious for Makino to incorporate an A/F ratio sensor in view of Lundgren, since it is always desirable to obtain additional information.

Claims 4, 5, 12, 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4, line 6, "the first and second monitor cells" does not have antecedent basis, since parent claim 1 recites only one monitor cell.

Claim 12, line 2, it is unclear what line is meant by "the line". Similarly, at line 5, what line is the "center line"?

Claim 14, line 2, which dimension is the "length", and which the "width"? Is the former the longer of the two dimensions?

Japan 11-344467 appears to be pertinent in that an analyte gas would reach the sensor cell 21 and the monitor cell 31 (figure 3) at the same time. However, the electrodes of the sensor cell and the monitor cell do not appear to be exposed to the gas cavity 6, where the pump cell is arranged, as required by applicant's claim language. A translation of this document has been ordered with the PTO translation. Presumably, it would be available before the next Office action.

Art Unit: 1102

The examiner can be reached at 703-308-3329. His supervisor Nam Nguyen can be reached at 703-308-3322. Any general inquiry should be directed to the receptionist at 703-308-0661. A fax number for TC 1700 is 703-872-9310.



Ta Tung

Primary Examiner

Art Unit 1753